

ABSTRACT

BACKGROUND:

Anorectal fistulas are a group of pathological conditions affecting terminal part of GIT and perineum. The dentate line of anal canal contains the anal glands in anal crypts. The internal and external sphincters surround the anal canal. The etiology of fistulas is obstruction of anal glands. The anorectal fistulas can be inter sphincteric, trans sphincteric, extra sphincteric or supra sphincteric. Detailed understanding of anorectal anatomy is needed for identification and management of anorectal fistulas.

Magnetic resonance imaging plays an important role in preoperative assessment. MRI helps in the identification of fistulous tracks, secondary infections and relationship of fistula with the anal sphincteric complex.

OBJECTIVES:

- To evaluate the role of MR FISTULOGRAM in preoperative assessment of anorectal fistulas.
- To identify the fistulous tracks, internal openings and the relationship of perianal fistulas with anal sphincter complex.

- To identify the secondary tracks and other complications like horseshoe track and abscesses and to grade the fistulas according to St. James University Hospital Classification.
- To assess the usefulness of contrast enhanced MR fistulogram in detecting secondary complications.
- To correlate MR findings with intra operative findings.

MATERIALS:

From June 2016 to July 2017, around 60 patients who were diagnosed to have perianal fistula clinically and referred for MR fistulogram to the Department of Radiology, Coimbatore Medical College Hospital, Coimbatore were included in the study.

DESIGN: Hospital based prospective observational study

SETTING: Department of Radio Diagnosis in collaboration with department of General Surgery.

STUDY METHODOLOGY:

Patients suffering from anorectal fistulas who were referred to the Department of Radio Diagnosis are included in this study. After obtaining permission from medical research ethics committee and informed consent from the patients, they were subjected to MR fistulogram using 1.5- Tesla

unit system. Different MRI sequences like oblique axial and coronal T1W FSE, T2W FSE, fat suppressed oblique axial and coronal T1 and T2W FSE and contrast enhanced oblique axial, coronal and sagittal FAT SAT T1W FSE images were used. The contrast used was gadolinium DTPA 0.1mmol/kg at a rate of 1 ml/ second.

MRI sequences	Non contrast scans		Non Contrast Fat Suppressed Scans		Contrast Enhanced Fat Suppressed Scans
	T1 W FSE	T2 W FSE	FS T1 W FSE	FS T2 W FSE	FS T1 W FSE WITH 3D RECONSTRUCTION
Imaging plane	Axial and coronal	Sagittal axial coronal	Axial and coronal	Sagittal axial coronal	Sagittal axial coronal
TR/ TE (m sec)	633/ 11	5040/113	766/ 11	6320/116	500/ 11
FOV	345* 345	346*346	347*347	347*347	300*300
SECTION THICKNESS (mm)	6 mm	6 mm	6 mm	6 mm	6 mm
MATRIX	512*512	512*512	512*512	512*512	512*512

The following were assessed: type of fistula, position of internal opening, grading of fistula by St. James's University Hospital MRI Classification and the accuracy of MRI findings was correlated with intra operative findings.

INCLUSION CRITERIA:

All patients with primary anorectal fistulas attending department of Radio Diagnosis, Coimbatore Medical College.

EXCLUSION CRITERIA:

- Patients with recurrent anorectal fistulas, failure of surgery, other comorbid pathologies that make them unfit for surgery are excluded from this study.
- Patients with cardiac pacemakers, new implants, clips within the body and other contraindications of MR imaging to be excluded.
- Patients with renal failure and allergic reactions are also excluded as contrast study cannot be performed on them.

TECHNIQUES:

Oblique sagittal images were taken parallel to the long axis of anal canal. The oblique axial plane is taken perpendicular to the sagittal plane. The perineum and levator ani muscles were included. The sequences used were oblique axial T1 weighted FSE, oblique axial, oblique coronal, sagittal T2 weighted FSE . Fat suppressed T2 weighted sequences such as STIR images were also taken. Gadolinium enhanced fat suppressed T1 weighted FSE was also taken.

RESULTS:

Of the total 60 patients included in the study, 39 patients were males (65%) and 21 patients were females (35%). The most prevalent type of fistula was intersphincteric type which was seen in 32 of the patients (53.33%). Trans sphincteric type of fistula accounted for about 38.34% which was seen in 23 patients. Extra sphincteric type of fistula was seen in 5 patients which accounted for about 8.33%. Common age group affected by perianal fistulas was 31 to 40 years (33.33%). Fistulas are commonly seen in males. The operative findings were well correlating with the study with regard to the site of the openings. Identification of secondary tracts is essential for complete eradication of the disease. As already known, active fistulous tracts enhance well with gadolinium contrast. Contrast study helps in better delineation of fistulous tracts and also in demonstration of secondary complications like abscesses. Our study has concluded that contrast study is indispensable for management. This is superior to the result given by Maier et al in his study(42) who showed a 84% sensitivity of MRI for the identification of perianal fistulas and abscesses. The better results of our study may be attributed to the use of contrast enhanced imaging.

In our study, we classified perianal fistulas on the basis of St James's University Hospital Classification. This revealed that grade I fistulas were the commonest which was found in 20 patients (33.33%), the second most common type being grade III fistulas which was found in 16 patients (26.66%). Grade II fistulas were found in 11 patients (18.33%). Grade IV and grade V fistulas are relatively uncommon. There was significant correlation between the fistulous tracts identified on MRI and the surgical findings. Fistulotomy is the preferred method of management in our institution. And for patients with abscess, abscess drainage is done. Fistulotomy was done in about 52 out of 60 patients which correlated well with the MRI findings for grades 3 to 5. Grade 1 and 2 fistulas showed discrepancies in identification. Abscess drainage was also done in 5 patients (8.35%) which were also in accordance with MRI findings. Correlation between surgical and MRI findings was significant in our study with a "p value" of 0.008.

CONCLUSION:

Perianal fistula, though an uncommon problem may be chronic and recurrent. It may present with numerous complications like secondary tracks and abscess cavities. Incomplete evaluation of these complications can result in residual and recurrent disease. So, complete preoperative evaluation of perianal fistulas is warranted. Also to prevent the injury to external sphincter and resultant fecal incontinence, it is necessary to establish the relationship of sphincter with the fistulous tracks. MRI satisfies all these needs of surgeons and helps in planning of surgery.

KEY WORDS

Perianal fistula, fistulogram